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Serpents;" which was referred to a Committee consisting of Major Le Conte, Prof. Haldeman and Dr. Leidy.

Dr. Genth presented a paper, intended for publication in the Proceedings, entitled. "On a probably new *Element*, with *Iridosmene* and *Platinum*, from California." Referred to Prof. Frazer, Dr. Le Conte and Dr. Bridges.

Prof. Haldeman stated that he had seen, at the recent agricultural exhibition at Lancaster, Pa., a pair of *albino* specimens of Tamias lysteri (or striata); also a *black* specimen of the same species; which would throw light upon the varieties of the grey squirrels, since it is more likely that these should have black varieties than the uniform species of Tamias. The specimen was black throughout, and there were no indications of the lateral stripes. A few scattered hairs of white might be observed on a close inspection. Prof. H. stated further that he had had an idiotic specimen of Sciurus Hudsonius, which had the actions of a human idiot. It was thus affected when caught, and was merely able to take its food, but incapable of running or leaping. Its principal actions were turning in a circle and moving the head up and down continually.

December 28th.

Vice-President BRIDGES in the Chair.

The Committee on Mr. Conrad's papers, containing "Remarks on the Tertiary Strata of St. Domingo and Vicksburg," and "Notes on Shells, with descriptions of new species," reported in favor of publication in the Proceedings.

Remarks on the Tertiary Strata of St. Domingo and Vicksburg, (Miss.)

By T. A. CONRAD.

The remarkable group of fossils which I discovered at Vicksburg, Miss., in 1845, derives a new interest for the geologist since the discovery of an analogous deposit in St. Domingo, in which are some few of the species of the Vicksburg strata. Whether all the forms of this group in St. Domingo are synchronous remains to be proved, but the probability is that they are. They have been referred to the Miocene period, whilst I had supposed that the Vicksburg strata were more intimately related to those of the Eocene period. I founded this supposition on the following data, viz:

1. No recent species was known, or is yet ascertained to occur in this locality.
2. Two or three fossil shells of the Older Eocene of Alabama are common.
3. No species is identical with, and only two or three analogous to, fossil shells of the American Miocene, even as the group occurs in South Carolina, but little north of the latitude of Vicksburg.
4. The forms have a closer analogy with those of the European Eocene than with any other group of fossils.

It might be supposed that a more southern latitude would vary the Miocene species, but not that the percentage of recent shells would be reduced to zero, nor would an utterly dissimilar group be introduced. The only condition which would seem likely to produce such a result would be a great depth of water, in which the shells had lived and died on the bed of a profounder sea than we have elsewhere any evidence of; but this is not probable, because the presence of so many littoral genera as *Pleurotoma,* the species of which are very abundant in specimens, *Turritella, Natica, Terebra, Oliva,* and various others, indicate shallow water, and the abundance of comminuted shells and waterworn specimens attest the vicinity of a sea beach.

The well known Miocene deposits are remarkably unlike that of Vicksburg, in the abundance of large species of *Venus, Fulgur, Perna* and *Panopæa,* some of which genera, with their peculiar species in every latitude, render the Miocene period recognizable at a glance. Indeed it is singular that the distinctive character of this formation should be so strongly marked over an extent of 400 miles north and south. Even the *Venus alveata,* a common Maryland fossil, seems to be abundant beneath the level of the sea, on Sullivan's Island, near Charleston, and another Maryland fossil, which I have named *Ecphora 4-costata,* (*Fusus 4-costatus* of Say,) was found on the beach of St. Simon's Island, Georgia. Both localities are south of the latitude of Vicksburg, the Georgia one nearly a degree farther south. The researches of Mr. Tuomey, in South Carolina, have brought to light at least 26 species, which are known to occur as far north as St. Mary's river, Maryland. From this comparison of groups it seems obvious that the Vicksburg deposit must be of earlier origin than the fossiliferous Tertiary strata of Maryland, Virginia, North and South Carolina, which seem all to be of one geological era, though Mr. Tuomey refers those of South Carolina to the Older Pliocene period. Whether the Mississippi formation should be termed an Older Miocene or a Newer Eocene, may yet be doubtful, but that it is intermediate between the Lower and Middle Tertiary, and differing widely from either in the period of its deposition, is obvious.

A careful exploration of the St. Domingo locality will probably clear up all doubts on the subject.

In conclusion, I may observe, that besides the *Turbinella Wilsoni* and *Oniscia harpula,* the *Cassidaria lævigata* Forbes is identical with my *C. lintea,* thus giving three species common to the Vicksburg and St. Domingo groups.

Notes on Shells, with Descriptions of new Species.

By T. A. Conrad.

Cryptodon, *Con.*

The name of this genus, founded on *Mya cancellata,* having been previously applied by Turton to another group of bivalves, and now adopted by some conchologists, it is necessary to change it, and I therefore propose

Schizothærus,

in allusion to the profound channel which indents the hinge on both sides of the cardinal teeth.

Schizothærus Nuttallii.

Cryptodon Nuttallii, Con., Journ. A. N. S. vol. 7, p. 325, pl. 18, fig. 1.

Unio.

Unio Mortoni, Con., Dec. 1835.

U. turgidus, Lea, 1837.

Mr. Lea's description of this species was read at a meeting of the Philosophical Society in Dec. 1834, but *not published* before 1837.

Miocene species ?

Ostrea.

Ostrea Titan. Elliptical or oblong; extremely thick and ponderous, contracted towards the hinge; ligament cavity profound; upper valve slightly arched; surface coarsely laminated. Length 10½ inches.

Locality. San Luis Obispo, California.

This huge species is imbedded in friable limestone which contains abundance of siliceous sand rounded by attrition. No other fossil can be detected in the portions of limestone which accompany the specimens.

Cretaceous Species.

PHOLAS.

Pholas pectorosa. Ovate-cuneate; anteriorly inflated, contracted in the middle; posterior side cuneiform; disk with radiating ribs, largest anteriorly, and interrupted by concentric furrows; anterior side very short, margin obtusely rounded or subtruncated; basal margin rounded anteriorly, contracted medially, straight posteriorly.

Locality. Tinton Falls, Monmouth Co., N. J.

This rare species was found by the late Lardner Vanuxem. It is a cast, on the right valve of which an impressed line runs obliquely from the apex, while on the opposite valve there is a corresponding furrow, and the three ribs nearest the posterior end are more remote from each other, than in the right valve.

INOCERAMUS, *Sow.*

Inoceramus Senseni.

Rounded; both valves profoundly curved; beaks involute, the volutions of the larger valve, 3, contiguous in both valves. Length 1½ inches; width 2⅞ in.

Locality. Missouri river, Nebraska. Mr. Senseny.

Inoceramus peroralis. Oval, convex, slightly oblique; beaks medial, both dorsal margins equally declining; basal margin acutely rounded; surface with obsolete concentric undulations. Height about 1¼ inches; length less than the height.

Locality. Chesapeake and Delaware Canal. Mr. Vanuxem.

The Committee on papers by Dr. Woodhouse—namely, "Description of two new species of Pouched Rats," and "Description of a new species of Struthus," reported in favor of publication in the Proceedings.

Description of a New Species of Pouched Rat, of the Genus Perognathus, Wied.

By S. W. WOODHOUSE, M. D.

PEROGNATHUS PENECILLATUS.

Characters. Above yellowish brown, beneath white, tail longer than the head and body, penecillate, with bright brown hair.

Form. Head of moderate size, not easily distinguished from the neck; incisors small and partially exposed, upper ones sulcate in the middle. Nose small and rather pointed, extending some distance beyond the incisors; whiskers light brown, irregularly mixed with black; eyes dark brown, and of moderate size; ears nearly round and moderate, almost naked anteriorly and covered posteriorly with fine brown fur; the tragus and antitragus are quite prominent. The external meatus is protected by a tuft of short black bristles extending across the ear. Tail about one and a quarter inches longer than the head and body, round, gradually tapering, and covered with hair; on the superior and middle portion commences a row of long silky hairs, which gradually increase in width until they form a tuft at the end. Fore legs short, feet small, with four well developed toes and a short thumb, which is armed with a nail; palms naked. Hind legs and feet long, having five toes, terminated by nails. Feet and toes covered with short fine fur; soles naked. The fur longer on the back than on the belly; it is thick, soft and silky.

Color. Incisors yellow, top of head and back dark yellowish brown, lighter on the sides; fur at base light ash color. Throat, belly, vent, fore legs and inner portions of thighs white. The white commences at the nostrils, and forms a well marked line to the thighs, and extending down to the heel, leaving the front of thigh white, the remainder and outer portion light yellowish brown; feet white. Under portion of tail white, above dark brown; the long hair of the tail is a rich brown.

		Inches.
Dimensions.	Total length from tip of nose to root of tail	3 5-10ths.
	" " of tail vertebra	3 7-10ths.
	" " of ear anterior	3-10ths.
	" " of whiskers	1 7-10ths.
	" " os calcis, middle toe nail	1.
	Distance from anterior angle of orbit to tip of nose	6½-10ths.

Habitat. New Mexico, west of Rio Grande.

Obs. Of the habits of this animal I know but little. The specimen in my possession is a male, and was procured in the San Francisco Mountain, New Mexico.

Description of a New Species of Pouched Rat of the Genus Geomys, Raf.

By S. W. Woodhouse, M. D.

GEOMYS FULVUS.

Characters. Light reddish brown above, beneath whitish. Ears small, round and covered with thick short black fur. Tail long in proportion when compared with others of this genus.

Description. Head large, nose broad, covered with short thick fur, with the exception of a small space at tip and the margins of the nostrils, which are naked. The nose extends a short distance beyond the plane of the incisors. The incisors are exserted, with three convex smooth sides, the exterior broadest, and of a yellowish color; their cutting edges are even. The upper incisors extend downwards and inwards; the under ones are one-third longer than the upper, and slightly narrower. Ears small and round, covered with short thick black fur externally. Eyes larger than is common in this genus. Tail round, thick at base, and gradually tapering. The fore claws are long, compressed, slightly curved and pointed. The claw on the middle toe is the longest, the fifth is the shortest, and that of the thumb resembles much the claw of the fourth toe of the hind foot, both as regards size and shape. The toes on the hind feet are a little longer and more slender than those of the fore feet; the nails short, somewhat conical and excavated underneath.

Color. Head, cheeks, back and sides bright reddish brown, being darker on the top of the head and back. The breast, vent, feet, inner portion of legs and thighs white, slightly inclining to ash; abdomen very light reddish brown; fur at base dark ash color above, beneath light ash. Edges of cheek pouches encircled with rufous; the long hair of the back extends about one third the length of the tail. The tail is covered with short white silky hairs, terminating in a small tuft. The fore feet above are covered with short white hair; the toes on their inner side have a row of long white hairs; palms naked. Claws are opaque, white for half their extent, the other half transparent; there is a small oblong reddish brown spot in the centre of each. The hind feet are covered above with white hairs, soles naked. The lips, on their inner side, are covered with short fine white hair, with a band of short fine black fur encircling the mouth. Whiskers silvery white.

		Inches.
Dimensions.	Total length from tip of nose to root of tail -	5.
"	" of tail vertebra - - - - -	1 3-10ths.
"	" from anterior angle of eye to tip of nose	7-10ths.
"	" from tip of nose to auditory opening	1 1½-10ths.
"	" of os calcis including middle toe and claw - - - - -	1 1-10th.
"	" from elbow to end of middle hind claw - - - - - -	1 8-10ths.
"	" of middle fore claw - - -	4-10ths.
"	" of hind claw - - - - - -	2½-10ths.
"	" of fur on back - - - - -	2½-10ths.
"	" of whiskers, about - - -	1 in.

Habitat. New Mexico, west of Rio Grande.

Obs. The specimen in my collection was procured near the San Francisco Mountain, New Mexico, where they were quite abundant.

These Pouched Rats of the genus Perognathus and Geomys I procured whilst attached as Surgeon and Naturalist to the party under command of Capt. Sitgreaves, U. S. Army, exploring the Zuni; and Little and Great Colorado Rivers of the west.

Description of a new Snow Finch of the genus Struthus, Boie.

By S. W. WOODHOUSE, M. D.

STRUTHUS CANICEPS.

Form.—Bill longer and more gradually tapering than in S. oregonus. Wings rounded; first quill shortest; second, third and fourth nearly equal; third slightly longest. Tail long and slightly emarginate. Tarsus long and slender.

Colors.—Head above, back of neck, and cheeks dark gray; throat, breast, and sides lighter grey; abdomen, vent, and under tail coverts inclining to white. Upper mandible dark brown, almost black; space between the eye and base of bill black. Back bright reddish brown; rump and upper tail coverts dark grey. Tail dark brownish black, with the lateral feathers in some specimens entirely white, and with others having large spots of white on their inner webs. In one of the specimens which I have seen, all of the three lateral feathers are mottled. Wings, with the primaries dark brown, and their outer margin narrowly edged with yellowish white. The secondaries with their inner webs dark brown, and their outer light reddish brown; scapular and lesser wing coverts light reddish brown. Tarsi and feet flesh color; nails brownish.

		Inches.
Dimensions.—	Total length of skin from the tip of bill to end of tail,	6 2-10ths.
"	of bill along the ridge, - -	4¾-10ths.
"	of wing from flexure - -	3 1½-10ths.
"	of tarsus, - - - -	8½-10ths.
"	of tail, - - - - - -	3 1-10th.

The female has the feet and bill colored like the male; the general plumage is darker and not so bright. The head is ashy brown, back dark reddish brown; secondaries dark brown, with a slight reddish brown margin on the outer webs. Scapular feathers and lesser wing coverts greyish brown; the measurements differ but little from those of the male, being slightly smaller.

Habitat.—Western Texas and New Mexico.

Obs.—My attention was first called to this bird by my friend Mr. John Cassin, who very kindly suggested an examination of several specimens of males in the collection of the Academy in connection with another in his possession, and a female in the collection, made by me when attached to the Exploring party under the command of Capt. Sitgreaves, Topographical Engineer, U. S. Army, in the

San Francisco Mountain, New Mexico. One of the specimens in the collection of the Academy is from Mexico, the others are from Texas. My specimen is from New Mexico. When obtained it was feeding in company with S. oregonus and various species of Parus, and it appeared very similar to the former and the common snow bird (S. hyemalis) in its habits.

The Committee on the following papers by Dr. Hallowell—namely, "On a new Genus and two new Species of African Serpents," and "On a new Genus and new Species of Reptiles, inhabiting North America," reported in favor of publication in the Proceedings:

On a new Genus and two new species of African Serpents.

By Edward Hallowell, M. D.

DINOPHIS *Hallowell.*

Gen. Char.—Form, that of a tree snake; perforated fangs in the anterior part of the upper jaw, immovable; several of the anterior teeth of the lower jaw longer than the others; but two rows of teeth in the upper jaw, the exterior row not existing; two rows in the lower jaw, quite short; no loral plate; 4 posterior,* 3 anterior orbital plates; tail long, subcaudal scales bifid.

DINOPHIS *Hammondii.*

Sp. Char.—Head olive color above, superior labials bordered with black; body above and upon sides green; total length about six feet; thirteen rows of long and smooth scales. Abdom. scuta 217. Sub. caud. 116.

Description.—The head is long, rounded and narrow in front, covered above with nine plates; the upper surface in front of the orbits is flattened; between the orbits it is convex, and also, but to a less extent, upon the occiput; the rostral is large, heptagonal, much broader below than above, excavated inferiorly, rounded in front; the anterior frontal are much smaller than the posterior, and are more or less quadrilateral in shape; the posterior frontal are very large, irregularly quadrilateral; they are prolonged externally upon the sides of the head, passing downward between the posterior nasal and the two superior ant-ocular plates; the vertical plate is short, very broad anteriorly; the supra-orbital are also short, projecting very slightly over the eye, narrow in front, broad behind; the occipital are very large and pentangular, much larger than broad; there are two nasal plates of nearly equal size, the anterior somewhat larger, with the nostrils between them; the external openings for the latter are quite large; there is no loral plate; there are three antocular and four posterior-oculars; the superior ant-ocular is the largest of the three; it is prolonged superiorly, so as to form a part of the upper surface of the head, entering in between the posterior frontal and the vertical and supra-orbital plates; the inferior ant-ocular is small and quadrilateral, the middle long and slender; there are eight plates upon the margin of the upper jaw; of these the seventh is the largest, and is remarkable for its unusual form; its superior margin is nearly straight, its posterior and inferior very much curved; the plate on the left side in the specimen examined differs considerably from that on the right, being more prolonged, and also truncated posteriorly; the fourth labial plate forms part of the inferior margin of the orbit, the remainder being completed by the inferior, anterior, and posterior oculars; there is a long, triangular, temporal plate occupying the space between the occipital and the seventh superior labial; the eyes are of moderate size, slightly projecting; there are but two rows of teeth in the upper jaw, one on each side, and two in the lower; in the front part of the upper jaw, immediately below the nostril, on each side of the head, is a curved and perforated immovable fang about three lines in length; there is no pit between the eye and the nostril, and this space is not channelled as in L. gracilis and Kirtlandii; several of the anterior teeth in the lower jaw are much larger than the others; the longest is slender and deeply fissured anteriorly. The neck is contracted, the body long, thicker about the middle, covered above with long and smooth quadrangular scales, arranged in thirteen rows; the scales nearest the abdomen are shorter than the others; the tail is quite long, covered above with four rows of short hexagonal scales, with margins more or less rounded posteriorly; the plates upon the under part of the tail are bifid.

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* In one of the specimens there are but three posterior oculars.

Color.—Head olive colored above, lighter upon the sides; the posterior margins of the labial plates black; posterior margin of inferior labials also black; neck, upper part and sides of body green, the scales upon the posterior part of the body bordered with black; abdomen greenish, without spots or blotches; tail greenish olive, many of the scales bordered with black.

Dimensions.—Length of head 1 inch 4 lines; greatest breadth 9 lines; length of body 3 ft. 11 inch. 2¼ lines; length of tail 1 ft. 5 inch. 7 lines; total length 5 ft. 7 inch. 2 lines; greatest circumference 2 inch. 8 lines.

I have named this serpent after my friend Ogden Hammond, Esq., of Charleston, S. Carolina.

Dimensions of a larger specimen.—Length of head 1 inch 6½ lines; greatest breadth 11 lines; breadth between the orbits posteriorly 9 lines; length of body 4 ft. 6½ inches; of tail 1 ft. 5 inch. 9 lines; total length 6 ft. 1. in. 9½ lines; greatest circumference 3 inches. Abdom. scuta 225; 112 pairs of subcaudal plates.

Habitat.—Liberia, W. Africa. Two specimens in the Museum of the Academy, presented by Dr. Goheen.

Remarks.—The dentition of this animal is very remarkable, no serpent with which I am acquainted having a single immovable perforated fang on each side of the anterior portion of the upper jaw. It is well known to Herpetologists that, although in Vipera, Naja, and other genera of venomous snakes, the exterior row of teeth is wanting, the poisonous fangs in certain serpents have behind them a number of smaller grooved teeth. This condition exists, according to Prof. Owen, in all the family of marine serpents, four such being found in Hydrophis striata, and five in Hydrophis schistosa. This is the case also in Bungarus, a land serpent, and in Hamadryas, a genus of poisonous tree snakes* in India, established by Dr. Cantor.† In our own venomous serpents, Elaps, Trigonocephalus and Crotalus, the exterior row of teeth is wanting. In this respect they resemble Dinophis, but the fang in the latter genus is, as above stated, quite immovable. In one of the specimens a movable perforated fang was observed on the right side behind the other immovable one.

Dr. Edward Whitaker Gray, in the Philosophical Transactions of London for 1789, makes some interestiug observations on the " class of animals called by Linnæus, amphibia; particularly on the means of distinguishing those serpents which are venomous from those which are not so." He arrives at the conclusion that the only mode of distinguishing a venomous from a non-venomous serpent is by an examination of their teeth; the tail, which is usually short in the venomous species, being sometimes short in the innocuous. This is the case in Pityophis affinis, and melanoleucus, both harmless serpents, with very short tails. Serpents whose appearance indicates inoffensiveness are not unfrequently very dangerous, as in the instance above cited, and in that of the genus Sepedon of Merrem, and Distichurus maculatus, which is quite small, and resembles in its general appearance an ordinary Coluber, but is provided with a small isolated fang on each side of the upper jaw. One of these, I have been informed, killed a black woman in Western Africa, death ensuing a short time after the bite; so that, as a general rule, it is best for travellers to avoid all serpents, unless they be naturalists and well acquainted with their structure and habits. In Bucephalus, a genus established by Dr. Andrew Smith, found in S. Africa, the posterior teeth are larger than the rest, and grooved upon their anterior and convex surface, as is the case also in Dryophis and Dipsas. Bucephalus, according to Dr. Smith, has six rows of teeth in the upper jaw, which is very remarkable, most serpents having but four. In vol. iv. p. 39 of the Proceedings of the Academy, mention is made by Dr. Savage of a wood sawyer having been bitten by a green serpent, while in the act of preparing a log for the saw—probably one of the species above described. The wound was in the foot, which was swollen, as was also the leg as high as the knee. Strong rum and Sulph. of Morphia were administered, and a free incision was made over the wound. Passive hemorrhage ensuing, the vessels were taken up and tied; the whole limb up to the groin became enormously swollen; a bad sore followed the incision, and the cuticle of the limb to a great extent came off. He recovered at the end of three weeks.

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* These poisonous tree snakes are probably more numerous in the East than is generally supposed. Dr. Ruschenberger informs me that in Siam he observed a large green tree snake, which was said by the natives to be very venomous.

† Proceedings of the Zoological Society of London, 1838, p. 72.

DENDROPHIS, Boie.

DENDROPHIS FLAVIGULARIS.

Sp. Char. Head dark brown above, lighter upon the sides; body and tail jet black; thirteen rows of scales; total length 6 ft. 3 in. 10 lines. Abdominal scuta 207; sub-caudal 146.

Description. The head presents the form of a triangle truncated anteriorly, depressed above posteriorly; rostral plate pentangular, broader below than above, rounded in front; there are two nasal plates with the nostrils between them; the anterior nasal is very large; there is a loral plate, also large and more or less quadrangular in shape; there is but one ant-ocular, which is broad above, its upper surface extending inward between the posterior frontal and the supra-ocular; there are three post-oculars, the two upper of nearly equal size, the inferior long and slender; there are two anterior and two posterior frontals, the posterior rather larger than the anterior; the vertical is pentagonal, much broader anteriorly; the supra-oculars are large, broad behind, narrow in front; the occipitals are broad and short, their transverse diameter being equal to their length; there are two temporal plates behind the posterior ocular, the posterior much larger than the anterior; there are eight superior labials, the fourth and fifth forming part of the orbit, the sixth and seventh are the largest; the eyes are very large; there are four rows of teeth in the upper jaw; nine plates margin the lower jaw on each side; the neck is contracted; the body long and slender, thicker in the middle, covered above with long and narrow carinated scales; those nearest the abdomen are shorter and broader than the rest; tail covered with smooth imbricated scales, broader than long.

Color. Dark brown upon the upper part of the head, and upon the temples; lighter upon the sides; chin and throat yellowish white; neck yellowish white, spotted with black; body and tail jet black; lighter upon the abdomen.

Dimensions. Length of head 1 inch 4 lines; greatest breadth 6½ lines; length of body 3 ft. 5 in. 2¼ lines; length of tail 1 ft. 6 in. 8 lines; greatest circumference 2¾ inches.

Habitat. Liberia, Western Africa.

A specimen in the Museum of the Academy, presented by Dr. Henry A. Ford.

Remarks. The animal above described has a general resemblance to the Bucephalus capensis of Dr. Andrew Smith, and is of about the same length, but differs in color. Bucephalus capensis, according to Dr. Smith, has six rows of teeth.

On a New Genus and three New Species of Reptiles inhabiting North America.

By EDWARD HALLOWELL, M.D.

LAMPROSAURUS, Hallowell.

Gen. Char. Head conical, pointed, rostral vertical, the supra-nasals on each side contiguous; internasal large; nostrils between two nasal plates; two fronto-parietals; tympanum depressed; a few small scales in front of the ear; no gular fold; body and extremities slender; toes 5–5; scales smooth and shining, similar upon back and abdomen, rounded posteriorly; preanal scales large; no femoral pores; no palatine or sphenoidal teeth; body and extremities slender.

LAMPROSAURUS GUTTULATUS.

Sp. Char. Body and upper surface of extremities black; a row of seven or eight white spots along the margin of the upper jaw; a row of white spots along the inferior margin of the supra-orbitar plates, continuous with which is a white spot upon the fronto-nasal, and another upon the parietal plates; the rest of the upper surface, sides and front part of the head, are jet black, with the exception of a small white spot along the upper margin of the third supra-orbitar, and one which is indistinct upon the freno-nasal plate; chin black; throat, abdomen and under surface of extremities iron grey, with a shining lustre. Total length 2 inches 6 lines.

Description. The head is elongated, conical and pointed, rounded above and in front; the rostral plate is vertical, pentangular, not grooved inferiorly, a little larger, apparently, in the vertical direction than transversely; there are two nasal plates, with the nostril between them; there are two supero-nasals, one on each side, contiguous, rhomboidal; the internasal is large, in contact laterally with the supero-nasal and the freno-nasal plate; in front with the supero-nasal, posteriorly with the fronto-nasal; the fronto-nasal are pentagonal, larger than the supero-nasal, their internal angle prolonged; they are in contact anteriorly with the inter-nasal and the freno-nasal; laterally with the freno-orbitar and the anterior supra-orbitar; posteriorly with the frontal; the frontal plate is long and hexagonal, broader in front, excavated laterally; the fronto-parietal are large and quadrilateral, larger than the fronto-nasal; the inter-parietal is broad and rather short, rounded posteriorly, the anterior angle passing in between the fronto-parietals; the parietals are large; there are five supra-orbitar plates, the third the largest; there are seven superior labials on one side and eight on the other, the last the largest; body and extremities slender; tail, according to Dr. Hammond, nearly as long as the body (mutilated in the specimen;) fourth toe much longer than the third, and stouter; third and fourth fingers of nearly equal length; body covered above with smooth imbricated scales, broad and rounded posteriorly; the scales upon the abdomen are similar to those upon the back; no femoral or anal pores; chin, throat and extremities covered with smooth imbricated scales.

Color. Body and upper surface of extremities black; a row of seven or eight white spots along the margin of the upper jaw; a row of white spots along the superior margin of the supra-orbitar plates, continnous with which is a white spot upon the fronto-nasal, and another upon the parietal plates; the rest of the upper surface, sides and front part of the head is jet black, with the exception of a small white spot along the upper margin of the third supra-orbitar, and one, which is indistinct, upon the freno-nasal; chin black; throat, abdomen and under surface of extremities iron grey, with a shining lustre.

Dimensions. Length of head 4 lines; greatest breadth 2¼ lines: length of neck and body 1 inch; of anterior extremity 7 lines; of posterior the same; of tail about 1 inch 2 lines.

Habitat. New Mexico, Fort Fillmore, below the Jornada del Muerte; found, also, at El Paso; rare, Dr. Hammond having seen but two specimens.

The specimen above described was found by Dr. G. F. Hammond, and presented by him to the Academy.

CROTAPHYTUS, Holbrook.

CROTAPHYTUS FASCIATUS.

Sp. Char. Head of moderate size, triangular, slightly swollen at the temples; body slender; anterior extremities idem; tail nearly three times as long as the body (including neck and extending to vent;) body covered with small granulations, ash colored, with seven or eight narrow transverse bands upon the back of the color of vermillion; bands of a similar color upon the tail; legs banded; abdomen covered with quadrangular scales: flesh-colored; femoral pores in the male very distinct.

Description. The head is subtriangular, rounded in front, slightly swollen at the temples, covered above with polygonal tubercles, larger anteriorly; a row considerably larger than the rest runs along the middle line of the front part of the head, midway between the nostrils; these tubercles are much smaller and of more uniform size upon the temples; they are also small over the orbits; the occipital plate is of moderate size, and rather indistinct; the supraciliary ridges are well developed; the external margin of the eyelid is bordered with a row of quadrangular scales, external to which is another row upon the lower lid, with pointed extremities, presenting a well-marked denticulation; the lids are covered with minute granulations; the nostrils are large, oval, lateral, looking outward and slightly backward, situated in a single scale; the rostral plate is narrow, quadrangular, much more extended transversely than in the vertical direction; the upper jaw is bordered with a row of seventeen plates; the external opening of the ear is very apparent, oval, its anterior border presenting a few small denticulations; neck folded; body slender, covered above with small granulations, rather larger upon the back than upon the sides; anterior extremities slender; posterior well developed; both covered above with granulations, rather larger in front than posteriorly; several rows of small plates along the margin of the lower jaw; chin and throat covered with small granulations; abdomen covered with smooth hexagonal and quadrangular scales; anterior surface of arms and forearms covered with small granulations; of thighs and legs with scales similar to those upon the abdomen; femoral pores very distinct; no anal ones; tail very long and slender posteriorly, covered with smooth quadrangular scales near its root, hexagonal posteriorly; these scales are distinctly verticillate throughout the greater part of the length of the tail, less so anteriorly, and carinated both anteriorly and posteriorly, except within about two inches of its root; femoral pores very distinct.

Color. Head of the specimen examined of a light yellow color, with numerous small brown spots disseminated upon its surface; a dark colored bar upon the temples, between the orbit and ear; chin and throat marked with dark colored lines and blotches; body ash color above, presenting numerous small points upon its surface, and marked with transverse bars of a vermillion color during life; upper surface of its extremities resembling in color that of the abdomen, the thighs and more especially the legs marked with transverse bands of vermillion; abdomen flesh color; tail ash, beautifully banded with transverse bars of vermillion.

Dimensions. Length of head 10½ lines; greatest breadth 7 lines; length of neck and body 2½ inches; length of tail 6½ inches; of arm 5 lines; of anterior extremity 1 inch 7 lines; length of foot to extremity of longest toe 13 lines.

Habitat. Sand hills, at the lower end of the Jornado del Muerte, New Mexico.

Remarks. This animal, of which there are two specimens, a male and a female, forming part of Dr. Woodhouse's collection, differs from the Crotaphytus Wislizenii of Baird and Girard, in the size and shape of the head: that of Wislizenii being about a quarter of an inch longer; the latter is also broader and the snout less pointed; the neck also in fasciatus is much more contracted, and the body and both anterior and posterior extremities are much less robust. In addition to these distinguishing characteristics, sufficient of themselves to separate the two animals, there exist in fasciatus seven or eight narrow transverse bands of a bright vermillion color upon the back, which are not observed in the other species.

TROPIDONOTUS, Kuhl.

TROPIDONOTUS WOODHOUSII.

Sp. Char. Head long, depressed, rounded in front; eyes projecting; neck much contracted; body thicker in the middle; tail of moderate length; scales strongly carinated; a series of transverse rhomboidal dark colored blotches upon the back, less distinct near the tail, obsolete upon the anterior half of the body, which is of an olive green color; interstices between the blotches white; 23 rows of scales. Abdominal scuta 150; sub-caudal

Description. The head is quite large and much depressed, covered above with nine plates; of these the anterior frontal are pentangular, their posterior and external angle being somewhat prolonged; the posterior frontal are much larger and irregularly quadrilateral; the vertical is pentagonal, much broader in front than posteriorly, its lateral margins being slightly hollowed; the supra-orbitar are oblong, pentagonal, broader behind than in front; the occipital are very large, pentagonal; the rostral is broad and quadrilateral, rounded above, excavated below; the nostrils look upward and outward, and are situated between two nasal plates; there is one loral on each side, which is quadrilateral; there are one anterior ocular and three posterior ocular plates; the former is quite large, and excavated anteriorly, so as to receive the posterior margin of the loral; there are two large temporal plates on each side of the occipital; there are eight labials upon the margin of the upper jaw on each side; of these the sixth and seventh are the largest; the eyes are large and projecting, the supraorbitars extending but slightly over the eye; the mental plate is small and triangular; the anterior and posterior geneials are quite long, the posterior somewhat more slender and larger than the anterior; the body is long, much thicker in the middle than at the extremities, covered with twenty-three rows of strongly carinated scales; the rows upon the sides are much less strongly carinated than those upon the back; the row nearest the abdomen is the broadest.

Color. Dusky olive upon the upper part of the head and back, becoming darker upon the middle of the body, and toward the tail, presenting numerous transverse dark colored bands, most distinct upon the posterior half of the body; these bands do not, as in Tropidonotus sipedon, extend as far as the abdomen; they are bordered anteriorly and posteriorly with a strip of white; chin, thorax and neck straw color; the abdominal scales are bordered anteriorly with black; tail straw color, with indistinct bands of black along the borders of the scales.

Dimensions. Length of head 1 inch 6 lines; greatest breadth 9 lines; length of body 2 ft. 2 inches; of tail 5½ inches. Abdominal scuta 150; sub-caudal 44, (tail broken off at extremity.)

Habitat. Prairies near the Arkansas river.

Remarks. The reptile above described resembles the Tropidonotus erythrogaster, in having the same number of rows of scales, there being 23 in each; and nearly the same number of abdominal plates, there being 148 in the erythrogaster and 149 in Woodhousii. The tail in the specimen of the latter species having been mutilated, their number could not be accurately determined. The coloration of the two animals, however, is very different, the white tranverse bands upon the back being very apparent in Woodhousii, but do not exist in erythrogaster. They differ also greatly in size, Woodhousii being a much smaller animal. Tropidonotus fasciatus has 140 abdominal plates and 42 pairs of sub-caudal scales. The "body has singular oblong or triangular purplish red spots on the flanks, which are insensibly lost about midway between the abdomen and vertebral line." "In old animals the whole superior and lateral surface becomes of a brownish color." Its circumference is five inches.

AMBYSTOMA NEBULOSUM.

Sp. Char. Head as broad as long, rounded in front; palatine teeth in the form of a triangle, the apex directed forward; body brown with numerous yellow spots; tail longer than neck and body; total length 5 inches 9 lines.

Description. The head is large, depressed above, about as broad as it is long; snout rounded; nostrils small, about three lines apart; eyes large and prominent; mouth very large; tongue broad and flattened, free at its edges, attached at its anterior border; palatine teeth ∧ shaped, the angle presenting forward, the extremities of the row being placed a short distance behind the internal nares; neck contracted; posterior extremities stouter than the anterior; body subcylindrical, flattened inferiorly; tail longer than the head and body, much more compressed, the posterior half especially, quite thin and rounded at its extremity.

Color. Head brownish above, with numerous indistinct yellowish spots posteriorly; body blackish, presenting many yellowish spots upon the surface, the largest about a line in diameter; extremities blackish, mingled with yellow; tail of same dark hue, with numerous yellow spots and markings; chin, throat and abdomen yellowish.

Habitat. New Mexico.

Dimensions. Length of head 8 lines; greatest breadth 8 lines; length of neck and body 2 inches 2 lines; of tail 2 inches 9 lines; of anterior extremities 1 inch 6 lines; of posterior the same; total length 5 inches 9 lines.

Another specimen from the same locality is more uniformly blackish upon the upper surface, the yellowish spots being absent; the chin, throat and abdomen are also more distinctly marked with black and yellow.

Remarks. The above species differs from the Proserpine of Baird and Girard in the shape of the head and in the coloring; and from Mavortia of Baird in the same particulars. The Mavortia, according to Prof. Baird, has "about nine broad transverse bands of yellowish on the sides of the body, confluent to a certain extent with that on the belly." He describes similar markings upon the tail, forming nearly complete ellipses, about twelve in number. The Mavortia is eight inches in length.

The Committee on the following paper by Dr. Genth, reported in favor of publication in the Proceedings:

On a probably new element with Iridosmine and Platinum, from California.

By Dr. F. A. GENTH.

I received from Dr. Charles M. Wetherill a small quantity of white grains, which were collected in 1849-50 from California gold by the late Jos. R. Reynolds, Esq. An examination of these grains furnished me results which are, perhaps, worth noticing.

I. When treated with boiling hydrochloric acid, two grains began to dissolve with disengagement of hydrogen. As soon as I observed this reaction, I picked them out and washed them off with water. With a good magnifying glass I found that they were mechanically mixed with gold. Their color was between a tin-white and steel color; they were malleable, but harder than tin; they dissolved in nitric acid, yielding a crystalline salt, the native gold which was mixed with them remaining undissolved. They precipitated copper from solutions but slowly. Hydro-sulphuric acid precipitated the solution in nitric acid brown. A pure piece of the metal before the blowpipe on charcoal fused readily. It was soon covered with a black oxide and gave no incrustations. Borax in the O. F. dissolved it and gave a colorless bead, which on cooling became opalescent; the same reaction took place more readily in R. F.

The quantity of this metal was too small for further experiments, but these reactions show that it is neither tin nor any other known element, although it has some relations to tin, but it is distinguished from it

1. By its solubility in nitric acid,
2. By its brown precipitate with hydrosulphuric acid.
3. By not being readily oxydized before the blowpipe into a white oxide, and by its other blowpipe-reactions.

May not the grains of native tin observed by Hermann in the auriferous sands from Siberia be the same substance ?

II. An examination of the white grains, which were insoluble in hydrochloric acid, gave (after a few scales of native gold had been extracted by quite diluted aqua regia) the following results.

Of 0·9366 grms. were 0·4625 grms. or 49·4 p. c. Sisserskite ($Ir\,Os_4$) in brilliant lead colored scales, some of which were imperfect six-sided prisms.

The remaining grains and scales (0·4741 grms.) had a tin-white color and were treated with aqua regia, as long as it acted upon them. Three rounded grains remained undissolved in aqua regia, which, I suppose, were Platin-Iridium. They weighed 0·0202 grms.=2·2 p. c.

The balance of 0·4539 grms. or 48·4 p. c. was native Platinum.

The composition of the sample received by Dr. Chas. M. Wetherill was therefore
New Element and Gold, not estimated.
Sisserskite = 49·4 p. c.
Platin-Iridium = 2.2 p. c.
Native Platinum = 48·4 p. c.

This native Platinum is not pure, but contains, like that from other localities, other substances, both alloyed and mechanically mixed with it.

When the 0·4539 grms. were dissolved in aqua regia, 0·0031 grms. or 0·68 p. c. of Sisserskite remained undissolved in minute and fine scales.

The solution was evaporated to dryness in a water-bath, dissolved in alcohol and precipitated with chloride of ammonium. The brick-red double salt thus formed was washed out with alcohol, then dried and powerfully heated. The ignited residue weighed 0·4206 grms. It was treated with weak aqua regia, which left undissolved 0·0110 grms. of Iridium and Rhodium = 2·42 p. c. (This is of course, only an approximate estimation of Iridium, etc.) This presence of Rhodium and Palladium was also ascertained, but I did not make any quantitative estimations, because the quantity I had to dispose of was entirely too small for the estimation of substances which can be separated only with the greatest difficulty.

The filtrate from the double salts of Platinum, etc., precipitated by ammonia gave 0·0432 grms. of sesqui-oxide of iron = 6·66 p. c. of iron.

The composition of this native Platinum is therefore
Platinum, (with Palladium) = 90·24
Iridium, (with Rhodium) = 2·42
Iron, = 6·66
Sisserskite, = 0·68
100·00

The Committee on a paper by Dr. P. R. Hoy, "On new Species of Owls," reported in favor of publication in the Proceedings.

Description of two species of Owls, presumed to be new, which inhabit the State of Wisconsin.

BY PHILO R. HOY, M. D., Racine, Wisconsin.

1. *Nyctale Kirtlandii*, nobis.

The smallest described species of this genus.

Male. Length 6½, ext. 16, tail extends to the tip of the folded wing. Head and entire upper parts brown with a reddish gloss. Plumage around the base of the bill and eyebrows white, immediately in front of the eye, intermingled with black bristles; from the base of the lower mandible two short stripes of white run downwards and backwards. Lores pitch black. Wings brown, inferior wing coverts, and edge of wing at flexure, white; primaries with three or four narrow spots of silky white on their outer margins, and all the quills with circular spots of white on their inner webs. Tail brown, narrowly tipped with white and crossed with two bands composed of spots of white, which are wanting on the outer webs of the two lateral feathers. Throat and upper part of the breast dark chesnut; all the under parts bright reddish yellow, tarsi and toes thickly covered with plumage of the same reddish yellow as the under parts. Bill and claws black, irides golden yellow.

But two specimens of this bird have been taken to my knowledge; the first was captured Oct. 1821, and kept until winter when it made its escape; the second, and the one from which the above description was taken, flew into an open shop, July 1852. It is strictly nocturnal, utters a low tremulous note, and is an active and efficient mouser. It is different from any other species yet known to inhabit North America, and appears to have some general resemblance in color to *N. Harrisii.* Cassin, but not sufficient to render it necessary to state their difference.

I have named this species, as a slight tribute of respect to that zealous Naturalist, Prof. Jared P. Kirtland, of Cleveland, Ohio.

2. *Bubo subarcticus,* nobis.

A large light colored species. Tail crossed by five bands, wings with the third primary longest, second shorter than the fourth, tooth or lobe of the upper mandible remarkably developed.

Total length 24 inches, wing from flexure 17, tail 9½, and extends 3½ beyond the folded wings, tarsus 2½, bill over its convexity 1 5-12ths, egrets 3 inches.

Above white and fawn color, zig-zagged and barred with brown, scapulars broadly marked on their outer webs with white. Tail bright fawn, crossed by five bars of brown, outer webs of the exterior and tips white, two central feathers colored similar to the back. Quills with seven bars of brown.

Beneath white; on the breast, sides and flanks, each feather crossed with bars and narrow stripes of deep brown, forming on the breast a wide irregular band of the latter color. Lower tail coverts white, each feather with a single narrow band of brown.

Face greyish white, lores tiped with black, egrets with their outer webs and tips black, inner webs white, bill dark horn color, lighter at the point, claws black, irides yellow.

The specimen now described was shot in January 1851, near this city, and proved to be a female. I have seen two others which were precisely similar in their markings to the present. This species does not agree in many essential points with Richardson's description of the Arctic horned Owl, nor does it agree either in color or anatomically with the common great horned owl, which is very abundant here, and of which I have kept living specimens for more than a year. Of the latter species I have seen some very dark colored specimens; which are mostly, but not invariably, male birds.

Some of my reasons for considering the bird just described as distinct from the common species, are as follows: It differs, 1. In color and markings. 2. In measurements; it has comparatively greater length of tail, and of wings. 3. Anatomically; the cranium of a specimen in my possession, shows a greater development of the posterior lobes of the brain and other differences, and a more distinct tooth like lobe of the upper mandible. 4. I have seen three specimens all corresponding in every particular, and all occurring only in the depth of winter, when the great Cinereous Owl, (*Syrnium cinereum,*) the Hawk Owl, (*Surnia funerea,*) and the Snowy Owl, (*S. nyctea,*) were with us. My conclusion is, therefore, that it is like these species, an inhabitant of the Arctic regions of this continent, and one of the rarest of the winter visitants in the northern parts of the United States, and in Wisconsin is much less common than either of the three species mentioned.

The Committee to which had been referred Dr. Wetherill's paper entitled " An Analysis of the Cotton Plant and Seed," &c., reported in favor of the publication of the following abstract of the same in the Proceedings :

Analysis of the Cotton Plant and Seed.

By the late THOMAS J. SUMMER, Esq., of South Carolina. Communicated by Dr. CHARLES M. WETHERILL.

In a communication on the analysis of the ash of a cotton stalk by Mr. Judd, in the Proceedings of the American Association for the Advancement of Science, p. 219, surprise is expressed at the absence of published analyses of the cotton plant, with the exception of one of the wood and another of the seed, by Prof. Shepard. I owe it to the memory of my friend and classmate in Giessen, the late Thomas J. Summer, Esq., to communicate the following analytical results arrived at by him whilst in the Giessen laboratory, and which have not been published, that I am aware of, except in pamphlet form for circulation among his friends :

Analysis of the Ash of the Cotton Plant.

The analysis was carried on in the usual manner—6.181 grammes were digested with muriatic acid, and evaporated to dryness by the water bath. After moistening with acid and adding water, the insoluble portion was separated, which consisted of 0.621 sand and coal, and 0.403 silica. The filtrate was divided into three equal parts. In the first, the iron, in combination with phosphoric acid, lime and magnesia, was determined. In the second, sulphuric and phosphoric acids. In the third, the alkalies.

The following are the per centage results :

	6·181 grammes.	Percentage.
Potassa,	1.365	22.08
Soda,	0.06	0.97
Lime,	1.082	17.50
Magnesia,	0.324	5.24
Oxide of iron,	0·444	7.18
Phosphoric acid,	0.849	13.73
Sulphuric acid,	0.081	1.31
Chloride of sodium,	0.037	0.59
Silica,	0.403	6.52
Carbonic acid, 1.066, ash gave	0.168	15.76
Sand and coal,	0.621	10.04
		100.92

The Ash of the Seed.

The seeds were burned in a muffle; only a slight red heat was necessary to burn them perfectly white.

For estimating the amount of water 6.406 grammes of the seed, dried at 212°, lost 0.646, or ten per cent. water; 6.587 of the dried seed left by incineration in a platinum crucible, 0.237, or 3.6 per cent. ash. The qualitative analysis showed the same constituents as in the ash of the plant, with the exception of carbonic acid. The following are the analytical results:

	Percentage.
Potassa,	27.82
Soda,	2.75
Lime,	10.88
Magnesia,	10.61
Oxide of iron,	3.43
Phosphoric acid,	35.43
Sulphuric acid,	3.19
Coal,	1.05
Traces of Silica, Loss and Cholorine.	4.84
	100.00

An inspection of the above analysis of the cotton seed shows that it abounds in the phosphates and alkalies. Drs. Will and Fresenius, in their analysis of the cereal grains, show that wheat also abounds largely in these constituents. The following analyses, as above quoted, will enable the comparison to be made :

	Red Wheat.	White Wheat.
Potassa,	20.80	30.17
Soda,	15.01	
Lime,	1.83	2.76
Magnesia,	9.12	12.08
Oxide of iron,	1.29	0.28
Phosphoric acid,	46.91	43.89
Silica,	0.15	
Coal and sand,	4.89	9.03
	100.00	100.00

These constituents being derived directly from the soil, plainly indicate the reasons why the land in the South is so readily exhausted. The crops extensively cultivated there, all require, in a great measure, the same food from the soil, and hence, soils which will not produce cotton are alike incapable of producing the cereal crops. The great benefit derived from the application of cotton seed as a manure, to these crops, is accounted for from the same causes, in their abundance of alkalies and phosphates. In connection with the assimilation of alkaline phosphates by plants, the experiments of Dumas on the solution of bones by water charged with carbonic acid, as detailed in a memoir "on the manner in which phosphate of lime enters organized beings," (Comptes Rendus, Nov. 30, 1846,) are interesting. He remarks that the phosphate of lime, though insoluble in water, nevertheless penetrates through bones, and is deposited in their structure, and that, on the other hand, bones are slowly disaggregated by the soil and disappear after a time. This is owing, according to Dumas, to two causes, the one, sal-ammoniac acting rarely and feebly, the other, carbonic acid, acting constantly and rapidly. Plates of ivory introduced by Dumas into bottles of Seltzer water, were as much softened after twenty-four hours as if they had been acted on by dilute muriatic acid; and the Seltzer water was found loaded with phosphate of lime. I would call attention to this property of carbonic acid as satisfactorily explaining the assimilation of the phosphate of lime by plants. The carbonic acid given off in the fermentation of the manure greatly facilitates the solution of phosphate of lime when present as bone ash.

It was a matter of surprise to Prof. Liebig that soils not furnished artificially with the preponderating constituents of the cotton plant and seed, should produce a crop abounding in the phosphates. This leads me to further investigation, and a rich field of research lies still unexplored in the analytical examination of the cotton soils of the South and West.

THOMAS J. SUMMER.

South Carolina, 1848.

It is indeed a matter of surprise that an article of such world-wide necessity should have been hitherto so neglected by agricultural chemists, and indeed I am not aware that we have even now an analysis in full of the ash of the whole plant. The two best analyses are those of the stalk by Summer and Judd. The analysis of the seed by Summer contains an error of loss and Chlorine = 4·84 p. c. The same analysis (of seed) by Shepard, gives an error of 1·68 p. c. of loss, Carbonate of potassa, Sulphates of Lime and Magnesia, Alumina and Sesquioxide of Iron; and Shepard's analyses are calculated with regard to the composition of the *ash* itself, instead of giving the constituents separately, which alone renders a comparison between different analyses possible, the composition of ash varying according to the nature and quantity of its constituents, and the degree of heat at which it is prepared. I have recalculated Summer's analysis of the stalk by Weber's new analytical Tables; want of data in the seed analysis rendered its recalculation impossible. I have also recalculated Summer's analysis to the hundred parts, neglecting Sand, Coal and Silica; and having separated the salts in Shepard's analysis, I recalculated the constituents in the same manner. The following table will show the comparative nature of the constituents of the ash of the plant, seed and wool, as analysed by Shepard, Summer and Judd; the defective analyses above mentioned considered as approximative:

Constituents of the Ash of the Cotton Plant.	STALK.		SEED.		WOOL.
	Summer.	Judd.	Summer.	Shepard.	Shepard.
Potassa	29·40	29·58	29·56	20·04	44·00
Soda	1·29	—	2·92	—	—
Zinc	23·30	24·34	11·56	27·84	22.43
Magnesia	6·97	3·73	11.27	0.13	4·45
Oxide of Iron	9·56	—	—	—	—
Alumina	—	—	—	—	1·94
Phos. Acid	18·28	34·92	37·65	48·92	19·63
Sulph. Acid	1·74	3·54	3·39	1·24	1·84
Chloride Sodium . . .	0·79	—	—	—	—
Silica	8·65	3·24	—	1·71	5·71
Chlorine	—	0·65	—	0·12	—
	100.00	100·00	100·00	100·00	100·00

The Report of the Corresponding Secretary was read and adopted. The Recording Secretary then read the following

ANNUAL REPORT.

From the 1st of January to the 1st of December, 1852, there have been elected thirty-three Members and eight Correspondents; four Members have died.

Besides numerous interesting minor and verbal communications, the following have been presented, during the past year, and reported on for publication in the Journal and Proceedings of the Academy.

By Audubon and Bachman. Description of a new North American Fox.

By Spencer F. Baird and Charles Girard, four, to wit: Characteristics of some new Reptiles in the Museum of the Smithsonian Institution, three papers; Descriptions of new species of Reptiles, collected by the United States Exploring Expedition.

By John L. Burtt, M. D. On the Influence of Sulphuretted Hydrogen, arising from the bottom of the bay of Callao, on the fishes inhabiting its waters.

By Mr. John Cassin, two, to wit: Catalogue of the Halcyonidæ in the Collection of the Academy of Natural Science of Philadelphia; Descriptions of new species of Birds, specimens of which are in the Collection of the Academy of Natural Science of Philadelphia.

By Mr. T. Conrad, three, to wit: Description of the new Fossil shells of the United States, (published in the Journal.) Remarks on the Tertiary Strata of St. Domingo, and of Vicksburg, Miss.; Notes on shells with Descriptions of new species.

By Mr. James D. Dana, three, to wit: Conspectus Crustaceorum quæ in Orbis Terrarum Circumnavigatione, Carolo Wilkes e Classe Reipublicæ Fæderatæ duce, lexit et descripsit J. D. Dana, three papers.

By James C. Fisher, M. D. On the Aurora of February 19th, 1852.

By Henry A. Ford, M. D. Characteristics of the Troglodytes gorilla.

By Frederick A. Genth, Ph. D. four, to wit: On some Minerals which accompany gold in California; On Strontiano-Calcite, a new Mineral; On Rodophyllite, a new Mineral; On a probably new Element with Iridosmine and Platinum, from California.

By Mr. Charles Girard. Additions to a former paper on the North American Astaci.

By Edward Hallowell, M. D., five, to wit: Descriptions of new species of Reptiles from Western Africa; Descriptions of new species of Reptiles inhabiting North America; Descriptions of new species of Reptiles from Oregon Territory; On a new genus and three new species of Reptiles, inhabiting North America; On a new genus and two new species of African Serpents.

By Adolphus L. Heermann, M. D.: Notes on the Birds of California, (published in the Journal.)

By P. R. Hoy, M. D. Descriptions of two species of Owls, presumed to be new, inhabiting the State of Wisconsin during the winter season.

By the Rev. Lorenzo L. Langstroth. On the Impregnation of the eggs of the Queen Bee.

By Mr. Isaac Lea, four, to wit: Description of a new species of Symphynote Unio; Description of a Fossil Saurian of the new Red Sandstone of Pennsylvania, with some account of the formation; On some new Fossil Molluscs in the Carboniferous slates of the Anthracite seams of the Wilkesbarre Coal Formation; Description of a new species of Eschara from the Eocene of Alabama.

By John L. Le Conte, M. D., fifteen, to wit: Notice of Fossil Dicotyles from Missouri; Notes on some Fossil Suiline Pachyderms from Illinois; Hints towards a natural classification of the Family Histrini of Coleopterous Insects; Synopsis of the Parnidæ of the United States; Synopsis of the Eucnemidæ of temperate North America; On the difference between Primordial Races and Introduced Races; Remarks on some Coleopterous Insects collected by S. W. Woodhouse, M. D., in Arkansas and New Mexico; Synopsis of the Anthicites of the United States; Synopsis of the species of Pterosticus Bon. and allied genera, inhabiting temperate North America, (published in the Journal.) Remarks on the Coccinellidæ of the United States; Description of a new species of Trombidium; Description of a new species of Sciurus; Catalogue of the Melyrides of the United States, with descriptions of new species; Synopsis of the Scydmenidæ of the United States; An attempt at a synopsis of the genus Geomys, Raf.

By Joseph Leidy, M. D. On the Osteology of the Head of the Hippopotamus, with a description of the Osteological Characters of a new Genus of Hippopotamidæ, (published in the Journal.)

By Col. George A. McCall, U. S. A. Description of a new species of Carpodacus.

By David Dale Owen, M. D. Notice of a Mineral from California, probably new.

By Mr. M. Tuomey. Description of some Fossil shells from the Tertiary of the Southern States.

By Charles M. Wetherill, Ph. D., five, to wit: Examination of the Molybdate of Lead from the Wheatley Mine, near Phœnixville, Pennsylvania; Chemical investigation of the Mexican Honey Ant; Further examination of the Phœnixville Molybdate of Lead; Chemical examination of the Food of the Queen Bee; Analysis of the Cotton Plant and Seed, &c., by the late Thomas J. Summer, with additions, by Charles M. Wetherill.

By S. W. Woodhouse, M. D., six, to wit: Descriptions of new species of Birds of the Genera Vireo, Vieill., and Zonotrichia, Swainson; Description of a new species of Ectopistes; Description of a new species of Sciurus; Description of a new species of Numenius; Descriptions of two new species of pouched Rats; Description of a new species of Struthus.

In all sixty-two papers.

In addition to the above, in accordance with a Resolution, adopted September 30th, 1851, Dr. Ruschenberger read on the evenings of February 3d and 10th, an exceedingly interesting, accurate and elaborate "Notice of the Origin, Progress and present condition of the Academy of Natural Sciences of Philadelphia," which was subsequently published by the Society.

In conclusion, the Recording Secretary congratulates his fellow members upon the continued harmony, activity and prosperity of the Society. In no former year has so large a number of communications been presented, the number of members has been greatly increased, and the attendance at the meetings full, while there has been displayed by those present, every evidence of zealous desire to forward the cause of Science, cherish the interests and sustain the reputation of the Academy.

All of which is respectfully submitted by,
B. HOWARD RAND, Recording Secretary.

Philadelphia, Dec. 28th, 1852.

The Librarian presented the following

REPORT FOR 1852.

Since the 1st of January last, 1706 volumes, 889 periodicals and 291 pamphlets have been added to the Library. The character and variety of the additions, with the number of each under their respective heads, are shown in the annexed table :

SUBJECT.	Volumes.	Periodicals.	Pamphlets.	SUBJECT.	Volumes.	Periodicals.	Pamphlets.
Gen. Nat. History and Mammalogy - - - - -	346	84	38	Brought over - - -	1380	887	244
Ornithology - - - -	41	51	15	Voyages and Travels - -	104	2	3
Herpetology - - - -	14		4	History and Geography - -	51		1
Ichthyology - - - -	33		13	Phys. Science and Chemistry	72		11
Entomology and Helminthology	167	154	31	Agriculture - - - -	15		4
Conchology - - - -	29	33	16	Medicine - - - -	16		5
Botany - - - -	46	25	6	Languages and Bibliography -	20		
Geology and Mineralogy -	169	46	73	Biography - - - -	9		3
Anatomy and Physiology -	158	24	48	Dictionaries of Arts and Sciences - - - -	10		
Proceedings, Journals, Annals, Memoirs, &c. of Societies -	377	470		Miscellaneous - - -	29		20
				Total - -	1706	889	291
Carried over -	1380	887	244	Charts - - - -	11		

Of the above, 57 have been received from Authors, 34 from Editors, 90 from Societies, Corporations, &c., 834 from Dr. T. B. Wilson, 1767 from Edward Wilson, Esq., 98 from other Members and Correspondents, and from miscellaneous sources, and 6 from the U. S. Government; making a total of 2886 additions to the Library in 1852.

From our fellow-member, Mr. Elias Durand, we have also received 109 autographs of distinguished scientific and literary men.

The excess in the increase of volumes this year over that of the last is 631. In 1851, the Library was increased 1075 volumes; in 1850, 1719 volumes; in 1849, 789 volumes; in 1848, 652 volumes; and in 1847, 630 volumes; making a total increase in six years of 6571. Many periodicals, also, in course of publition during these years, and recorded as such in our lists of donations to the Library, have since been bound into volumes, the number of which may be estimated at about 700; and added to the above, give a total of nearly 7300 volumes contributed to the Society's Library in that short period.

In the Report submitted to the Academy in December 1850, the number of volumes in the Library at that time, as ascertained by actual enumeration, was 12,057. If to these be added those since received, with the proportion of volumes of periodicals bound in that time, the number on our shelves at present exceeds 15,000.

Nearly all the additions in the six years above referred to, have been gifts from individuals or Societies, or in exchange for our own publications, very little money having been expended.

The rich and costly collection which surrounds us, like that in our noble Museum, affording instruction and delight not to ourselves alone, but to numerous inquirers after knowledge beyond our own limits, is therefore made up almost entirely of spontaneous offerings, prompted by disinterested generosity or a love for science. Let us not lose sight of this fact; it cannot be too often referred to, or too strongly impressed upon us. Every means in our power should be employed to protect such valuable trusts from abuse and loss. The plausible pretender to science, the inconsiderate idler and the pilferer, should find no encouragement within these walls.

The present accommodations for the books have become too limited to admit of their proper arrangement, or of easy access to them. For the last few months inconvenience has been experienced to an annoying extent from some of the cases being crowded to excess. Many plans have been suggested with a view to remedy this evil, all of which, however, were of too temporary a character to admit of adoption.

It is now, however, proposed to remove to the Hall above, as soon as appropriate places can be prepared for them, the entire collections in Mineralogy, Conchology, Herpetology, &c., at present contained in the basement apartment adjoining the Library, and to convert the latter into a library room. The area of this apartment is nearly equal to that now occupied for library purposes, and may be estimated to be sufficient to accommodate at least 10,000 additional volumes. The basement of the building would then, with the exception of one room, (which must be retained for the reception and unpacking of parcels, boxes, &c.,) be occupied by the library, and the great advantage gained, which has been so long desired, of keeping it isolated or distinct from the Museum.

The statement above presented is in every respect gratifying, and the Society may be congratulated, as on every occasion like the present for the last few years, on the rapid and steady advancement in this department—the most important, perhaps, in the Institution—affording the best evidence of the favor in which the latter is everywhere held, and the unceasing liberality of its friends and supporters. The Academy of Natural Sciences may justly boast that in this age of progress it has not been left behind. It is, and has been, since its origin, with few exceptions, progressive; partly owing, doubtless, to its intrinsic merit, but mainly to a succession of advantageous circumstances operating in its favor. Its benefactors have been open-handed to an extent heretofore unknown in institutions of this nature in our country. The names of Maclure and Wilson, especially, will never be mentioned without regard and admiration. Through their instrumentality, in a great measure, the Institution now rests upon a firm and solid basis; its endurance will depend not merely upon the intelligence, zeal and industry of those who succeed us here, but also upon a proper appreciation by them of the true and legitimate objects of its founders. No misgivings, however, need be entertained on this head. At no period in its history have the prospects been more encouraging than at present, of its high scientific reputation being fully maintained, and of its utility and advantages to the community being generally recognised as a great centre for the increase and diffusion of knowledge.

Wm. S. Zantzinger, Librarian.

Hall of the Academy, Dec. 28, 1852.

The Annual Report of the Treasurer was read and referred to the Auditors.

The Report of the Curators was then read, as follows:

REPORT OF THE CURATORS FOR 1852.

Since the last annual report of the Curators was presented to the Academy, very considerable additions have been made to its Museum, which, we are happy to state, continues in a good state of preservation. Latterly the Cabinet has sustained several losses by the abstraction of valuable specimens, but the circumstance having excited the attention of the Curators, means have been resorted to, which we hope will prevent further depredation.

During the year, the different departments of the Museum have received the following donations:

Mammalia.—Of this class there have been presented the skins of 35 specimens of 25 species, principally from Mr. D. Leasure, Drs. A. L. Heermann, E. K. Kane, J. L. Le Conte, S. W. Woodhouse, Mr. J. D. Sergeant and Col. G. A. McCall.

Aves.—Of bird-skins 94 specimens of about 60 species have been received. The principal donors are Drs. H. G. Dalton, E. K. Kane, A. A. Henderson, T. Carlton Henry, W. S. W. Ruschenberger, Messrs. E. H. Kern, J. D. Sergeant, G. N. Lawrence, J. Lambert, G. A. McCall. Part of the number formed the collection made in Lieut. Lynch's Expedition to the Dead Sea, and were presented by order of the Secretary of the Navy.

Besides the above, numerous species have been deposited by Dr. Wilson, of which no official record has been given to the Curators.

Of birds' eggs, a large number of specimens of about 40 species, have been presented by Messrs. John Krider, E. Wilson, and A. L. Heermann.

Reptilia.—Of this class 100 specimens have been presented, chiefly by Messrs. H. A. Ford, A. L. Heermann, G. Watson, B. F. Shumard, J. Le Conte, G. W. Fahnestock, G. A. M'Call, J. Krider and E. Harris. The species are from different parts of the world, and a number of them from Africa and the western part of North America, are new, and have been recently described in the Proceedings of the Academy by Dr. Hallowell.

Pisces.—Of fishes 58 specimens of 35 species have been presented by Messrs. G. W. Fahnestock, Edw. Wilson, A. A. Henderson, E. Harris, J. Le Conte and T. Conrad. Among the number are several specimens of the curious Branchiostoma.

Mollusca.—In this department the Cabinet has received an addition of numerous specimens of 80 species of shells, chiefly from Messrs. Edw. Wilson, S. Hanly, J. Krider and J. L. Burtt.

Crustacea.—In this department we have reaped a rich harvest.

190 specimens of 54 species of British Crustacea were presented by Edward Wilson, Esq.

282 species of 136 genera, from the collection of M. Guerin Meneville, have been received from Dr. T. B. Wilson. This collection is particularly valuable, on account of the great number of minute and rare species from all parts of the globe, which it contains.

Besides the above, M. J. Verreaux, of Paris, has presented 36 specimens of 14 species, and 112 specimens of about 50 species, were received from Messrs. Edw. Wilson, S. Ashmead, J. Le Conte, and others.

Insecta.—600 specimens of the various orders of insects have been presented principally by Messrs. A. L. Heermann, H. G. Dalton, S. S. Haldeman.

Arachnida, Annelida and Myriapoda.—Of these 49 species have been received from Messrs. Edward Wilson, R. H. Kern, R. E. Peterson, and others.

Zoophyta.—178 specimens have been presented by Messrs. Edward Wilson, T. B. Wilson, W. S. W. Ruschenberger, F. S. Holmes, and others.

Comparative Anatomy.—A magnificent skeleton of the Troglodytes Gorilla, *Savage*, was presented by Dr. Henry A. Ford, of Liberia, and a specimen believed to be unique, of the skeleton of Chœrodes Liberiensis, *Leidy,* has been received from Dr. T. B. Wilson.

Besides the foregoing, 49 crania of mammals, birds and reptiles, 17 skeletons of birds, and 58 miscellaneous specimens have been presented by Messrs. J. Verreaux, De la Berge, A. L. Heermann, G. P. Oliver, B. H. Coates, Amory Edwards, W. Wood, A. Janney, and others.

Botany.—The herbarium has been increased by the addition of a number of valuable specimens.

Major J. Le Conte presented his entire collection of North American plants, made through the course of many years.

Other collections of Phænerogamous plants have been presented by the Rev. M. A. Curtis, of South Carolina, Dr. A. L. Heermann, Mr. R. H. Kern, and Dr. Engelmann, of St. Louis.

Of fruits, lichenes, marine algæ, &c. we have received 96 specimens from Messrs. S. Ashmead, G. W. Fahnestock, J. C. Trautwine, E. K. Kane, and others.

Palæontology.—An interesting collection of minute crag fossils of England, consisting of 41 species, was presented by Dr. T. B. Wilson.

Dr. J. L. Le Conte has presented the unique fossils upon which were established the Dicotyles depressifrons, D. cristatus, Procyon priscus, Protochœrus prismaticus, and Anomodon Snyderi.

Dr. Isaac Hays presented an interesting specimen, upon which has been proposed the Tapirus Haysii.

Besides the above, 219 specimens of organic remains have been presented by Messrs. D. D. Owen, Thomas Fisher, A. Jessup, R. Kilvington, C. Wistar, C. H. Budd, J. L. Burtt, Leidy, Wetherill, H. W. Kennedy, Spackman, and others.

Mineralogy.—83 specimens of minerals have been presented by Messrs. W. D. Hartman, S. Ashmead, W. S. Vaux, T. Fisher, C. M. Wheatley and J. L. Burtt. Among the specimens is a beautiful piece of crystalline native copper, one and a half feet in length, from Lake Superior, the donor of which is Mr. B. A. Hoopes.

In conclusion, the Curators respectfully call upon the members to co-operate in the endeavors now being made to raise a fund sufficient to increase the capacity of the Museum to an extent demanded by its collections; and they hope, at the next annual meeting, to be able to report that ample space has been provided for the accommodation of any future additions to the Cabinet.

Joseph Leidy, Chairman of the Curators.

The Committee on Proceedings presented the following

REPORT

The "Proceedings" of the Academy, the publication of which was commenced more than ten years since, has increased gradually in importance, and now commands respect broad, from the value and diversity of its contents. It is quoted by kindred journals, and seems to be regarded as authority.

The members of the Academy are respectfully invited to consider the value of this publication.

To make widely known the labors of the members of the Academy is, in its influence on the prosperity of the Institution, and on the increase of knowledge, second only to those labors themselves. Discoveries in natural history are valuable in proportion to the number of persons to whom they may be made known. While a knowledge of new facts is limited to the discoverer and his companions, science gains little and society is scarcely benefited by the toils of research. It is not necessary to enlarge on this point; every one is aware that while sight and hearing place external things in relation with us, it is voice which places us in relation with external things.

The Journal of the Proceedings, and the Journal of the Academy, are the vocal organs, the voice of the Institution, through the medium of which all the facts it acquires, and all the opinions it forms, are promulgated. These publications are a sure means of making known the results of our investigations and studies, and, consequently, our existence as a corporate body. Through them alone the Academy is placed in communication with analogous Institutions at distant points of our own country and in foreign lands. To these publications the Academy is indebted for its reputation, a wide-spread appreciation of its importance, and also for much of what is contained in the Library and in the Museum.

While we refer with satisfaction to the quantity and quality of information placed on record and printed in the Proceedings, and may be excused, perhaps, for believing that this journal is not surpassed, if equalled by any similar publication in the United States, it may be well to disclose the fact that it does not receive, even from members of the Academy, all the substantial support and encouragement which are necessary to its prosperity.

When it is known that the subscription price of a copy of the Proceedings for a year is only one dollar, it is hoped this statement will be sufficient to cause every member to contribute towards diminishing the charge upon the Treasury, by becoming a subscriber himself, and by inducing others to subscribe whenever proper opportunity offers.

The whole is submitted, on behalf of the Committee on Proceedings,

W. S. W. RUSCHENBERGER.

Hall of the Academy, Dec. 28, 1852.

Dr. Fisher, from the Committee on Mammalogy, reported that 123 skins of mammalia had been mounted and added to the collection, at an expense of $289, which had been defrayed by the following named members: Edward Harris, J. Price Wetherill, Charles D. Meigs, John K. Mitchell, George W. Carpenter, William S. Vaux, Joseph Carson, Jos. Pancoast, P. B. Goddard, Robert Pearsall, Wm. E. Horner, Isaac Lea, Thos. D. Mütter, George B. Wood, Wm. Parker Foulke, Charles Lennig, Thos. B. Wilson, W. S. W. Ruschenberger, B. H. Coates, Samuel Ashmead, R. E. Peterson, R. Bridges, Jas. C. Fisher.

Dr. Woodhouse requested that the following correction be published in the Proceedings:

Having discovered that the specific name *dorsalis*, which I applied to the squirrel brought by me from New Mexico, and which I described in the Proceedings of the Academy for June last (page 110,) has already been applied by J. E. Gray to one of the same genus, I propose now to call it SCIURUS ABERTI, after Colonel J. J. Abert, chief of the corps of Topographical Engineers, U. S. Army, to whose exertions science is much indebted.

The Academy then went into an election for Officers for 1853; a note from Mr. John Cassin having been first read, declining a re-election as Corresponding Secretary. The following result was announced by the Chairman:

President . . .	George Ord.
Vice-Presidents . . .	J. Price Wetherill, Robert Bridges.
Corresponding Secretary .	John L. Le Conte.
Recording Secretary . .	B. Howard Rand.
Librarian . . .	Wm. S. Zantzinger.
Treasurer . . .	George W. Carpenter.
Curators . . .	Joseph Leidy, Wm. S. Vaux, John Cassin, Samuel Ashmead.
Auditors . . .	Robert Pearsall, A. L. Elwyn, James C. Fisher.
Publication Committee	Wm. S. Vaux, R. Bridges, Thomas B. Wilson, Isaac Lea, W. S. W. Ruschenberger.

ELECTION.

John D. White, M. D., of Philadelphia, was elected a *Member* of the Academy.